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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,665	01/29/2004	Ching-Wei Lin	TET-PT049	5412
3624	7590	02/17/2006	EXAMINER	
VOLPE AND KOENIG, P.C. UNITED PLAZA, SUITE 1600 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103			SMOOT, STEPHEN W	
			ART UNIT	PAPER NUMBER
			2813	

DATE MAILED: 02/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/767,665

Applicant(s)

LIN, CHING-WEI

Examiner

Stephen W. Smoot

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 13-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-11 and 13-21 is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☒ Claim(s) 5-7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12-12-05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office action is in response to applicant's amendment received on 19 December 2005.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Jung et al. (US 5,858,820).

Referring to Figs. 19A-19D and column 5, lines 34-67, Jung et al. disclose a method for manufacturing a polysilicon thin film transistor that includes depositing an amorphous silicon layer (502) on a substrate (500) as shown in Fig. 19A, etching the amorphous silicon layer (502) to form amorphous seed layer portions (504) as shown in Fig. 19B (also see column 2, lines 48-55), depositing a second amorphous silicon layer

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(506) over the amorphous seed layer portions (504) as shown in Fig. 19C, and using a laser to completely melt the second amorphous layer (506) to form a laser crystallized active region (508) (i.e. a polysilicon thin film) as shown in Fig. 19D.

These are all of the limitations set forth in claim 1 of the applicant's invention.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jung et al. as applied to claim 1 above, and further in view of Yoshimoto (US 6,489,222 B2).

As shown above, Jung et al. anticipate claim 1 of the applicant's invention. However, Jung et al. lack the further limitations to claim 1 as set forth in claims 2-4 of the applicant's invention, which are the use of a glass substrate (claim 2), the use of a plastic substrate (claim 3), and the use of an excimer laser (claim 4). Regarding claim 2, Yoshimoto teaches that glass substrates like synthetic quartz glass, barium borosilicate glass or aluminum borosilicate glass may be used as a transparent substrate for display devices (see column 8, lines 19-25). Regarding claim 3, Yoshimoto teaches that plastic substrates like polycarbonate, polyallylate, polyether

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sulfone, or polyethylene terephthalate may be used as a transparent substrate for display devices as an alternative to a glass substrate (see column 8, lines 19-25). Regarding claim 4, Yoshimoto teaches that excimer lasers like a pulse emission XeCl excimer laser may be used to crystallize amorphous semiconductor films through laser annealing (see column 16, lines 8-29).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Jung et al. and Yoshimoto in order to use a glass substrate or a plastic substrate, as taught by Yoshimoto.

Regarding claim 2, Yoshimoto recognizes that glass substrates can advantageously be manufactured into substrates with large surface areas (see column 1, lines 29-39).

Regarding claim 3, Yoshimoto recognizes that plastic substrates are alternative transparent substrates that can be used instead of glass (see column 8, lines 19-25) and plastics would also have the advantage of being a lighter weight material than glass. Regarding claim 4, it also would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Jung et al. and Yoshimoto in order to use an excimer laser, as taught by Yoshimoto, because Yoshimoto recognizes that excimer lasers advantageously have high output (see column 16, lines 9-11).

Allowable Subject Matter

5. Claims 5-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims.

6. Claims 8-11, 13-21 are allowed.

7. The following is a statement of reasons for the indication of allowable subject matter:

- Claims 5-7 would be allowable and claims 8-11, 13-20 are allowed because the prior art of record does not teach or suggest, in combination with the other claim limitations, a process for forming a polycrystalline silicon layer that includes forming a seed by using the steps of patterning an intermediate covering layer, forming an amorphous silicon spacer beside the patterned covering layer, and removing the patterned covering layer; and
- Claim 21 is allowed because the prior art of record does not teach or suggest, in combination with the other claim limitations, a process for forming a polycrystalline silicon layer that includes defining a first region and a second region on a substrate, combined with the steps of recrystallizing amorphous silicon in the first region to form a polycrystalline silicon layer and recrystallizing

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amorphous silicon in the second region to form a microcrystalline silicon layer, wherein Maegawa et al. (US 5,766,989 – from applicant's IDS) (see column 5, lines 46-60) show that a microcrystalline semiconductor layer has the customary meaning, as recognized in the art, of microcrystals dispersed in amorphous silicon that is distinguishable from a polycrystalline semiconductor layer, which has the customary meaning, as recognized in the art, of crystal grains in contact with each other and is further characterized by having grain boundaries.

Response to Arguments

8. Applicant's arguments with respect to claims 1-4 have been considered but are moot in view of the new grounds of rejection.

Conclusion

9. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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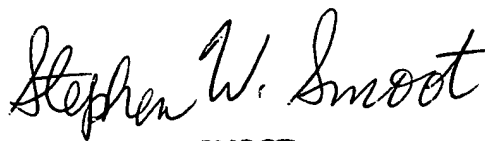
mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen W. Smoot whose telephone number is 571-272-1698. The examiner can normally be reached on M-F (8:00 am to 4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr. can be reached on 571-272-1702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SWS


STEPHEN W. SMOOT
PRIMARY EXAMINER